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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,046	09/21/2000	Steven A. Lytle	LYTLE 18	8375

7590 12/05/2001

Charles W Gaines  
Hitt Gaines & Boisbrun PC  
P O Box 832570  
Richardson, TX 75083

EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 12/05/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/667,046

Applicant(s)

LYTLE, STEVEN A.

Examiner

Hung K. Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 6) ☐ Other: \_\_\_\_\_

Art Unit: 2811

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Invention of Group II, Claims 21-28, in Paper No. 6 is acknowledged.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-24 and 26 are rejected under 35 U.S.C. 102(a) as being anticipated by Tsai et al. (PN 6,020,255, of record).

Tsai et al. discloses a semiconductor device comprising,

A first metal feature (10) located over a semiconductor surface and having a first dielectric layer (120) located thereover and a second dielectric layer (130) located over the first dielectric layer, the second dielectric layer having a second metal feature (160) located in a surface thereof;

A via located through the first and second dielectric layers, the via extending between and connecting the first metal feature and the second metal feature, the via being void of a landing pad between the first and second dielectric layers. Note Figures 2a – 3f of Tsai et al..

Art Unit: 2811

With regard to claims 22, Tsai et al. discloses the via is a first via and the semiconductor device further includes a second via located through the first and second dielectric layers and wherein a trench structure (125) is located over and connects with the second via.

With regard to claims 23, Tsai et al. discloses the device further including a trench structure located adjacent the via.

With regard to claims 24, Tsai et al. discloses the via is a passing metal via with no passing metal feature.

With regard to claims 26, Tsai et al. discloses the device further including a damascene structure located adjacent the via.

3. Claims 21, 24-25, and 27-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang et al. (PN 5,654,589, of record).

Huang et al. discloses a semiconductor device comprising,

A first metal feature (16) located over a semiconductor surface and having a first dielectric layer (24) located thereover and a second dielectric layer (34) located over the first dielectric layer, the second dielectric layer having a second metal feature (140) located in a surface thereof;

Art Unit: 2811

A via (36) located through the first and second dielectric layers, the via extending between and connecting the first metal feature and the second metal feature, the via being void of a landing pad between the first and second dielectric layers. Note Figures 1a-2 of Huang et al..

With regard to claims 24, Huang et al. discloses the via is a passing metal via with no passing metal feature.

With regard to claims 25, Huang et al. discloses the device further including transistors wherein the first metal feature is located over the transistors and interconnect the transistors to form an operative integrated circuit.

With regard to claims 27, Huang et al. discloses the device further including a third dielectric layer (134) located over the second dielectric layer and a landing pad (46) located between the second dielectric layer and the third dielectric layer.

With regard to claims 28, Huang et al. discloses the device further including a via that extends through the third dielectric layer and contacts the landing pad.

4. Claims 21-24 and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Stolmeijer (PN 5,834,845).

Stolmeijer discloses a semiconductor device comprising,

Art Unit: 2811

A first metal feature (32) located over a semiconductor surface and having a first dielectric layer (40a) located thereover and a second dielectric layer (38a) located over the first dielectric layer, the second dielectric layer having a second metal feature (36a) located in a surface thereof;

A via located through the first and second dielectric layers, the via extending between and connecting the first metal feature and the second metal feature, the via being void of a landing pad between the first and second dielectric layers. Note Figures 2-4 of Stolmeijer.

With regard to claims 22, Stolmeijer discloses the via is a first via and the semiconductor device further includes a second via located through the first and second dielectric layers and wherein a trench structure is located over and connects with the second via.

With regard to claims 23, Stolmeijer discloses the device further including a trench structure located adjacent the via.

With regard to claims 24, Stolmeijer discloses the via is a passing metal via with no passing metal feature.

With regard to claims 26, Stolmeijer discloses the device further including a damascene structure located adjacent the via.

Art Unit: 2811

With regard to claims 27, Stolmeijer discloses the device further including a third dielectric layer (38c) located over the second dielectric layer and a landing pad (36b) located between the second dielectric layer and the third dielectric layer.

With regard to claims 28, Stolmeijer discloses the device further including a via that extends through the third dielectric layer and contacts the landing pad.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stolmeijer (PN 5,834,845).

Stolmeijer discloses all of the claimed limitation except the device further including transistors and the first metal feature is located over the transistors and interconnects the transistors to form an operative integrated circuit. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device of Stolmeijer including transistors and the first metal feature is located over the transistors and interconnects the transistors to form an operative integrated circuit because it is conventional to integrate multi circuits having plurality of transistors in order to provide different desired functions.

Art Unit: 2811

*Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 7:00-5:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

November 17, 2001

Steven Loke  
Primary Examiner



U.S. Patent No.InventorDate

6,020,255

Tsai et al.

February 1, 200

~~January 1, 2000~~

438/618

5,654,589

Huang et al.


August 5, 1997

257/63

Applicant hereby expressly reserves the right to swear behind the effective dates of any of the above Patents and to question the relevance and materiality of the Patents and Publications listed herein, in whole, in part, or in combination, subsequent to filing this Information Disclosure Statement.

Respectfully submitted,

HITT GAINES &amp; BOISBRUN, P.C.



Charles W. Gaines

Registration No. 36,804

Date: 9/21/2000

P.O. Box 832570  
Richardson, Texas 75083  
(972) 480-8800

HUNG K. VU

11/14/01